



# The Harbinger

Newsletter of the  
Illinois Native Plant Society

December 2018  
Vol. 35, No. 4

*"... dedicated to the study, appreciation, and conservation of the native flora and natural communities of Illinois."*



Meet the National Champion Shumard Oak (*Quercus shumardii*)—yes, the biggest Shumard oak in the country! Located on private land near Anna, Illinois. It boasts a circumference of 27.7 feet, a height of 96 feet, and a spread of equal distance, giving it a total score of 452. It is estimated to be between 300-350 years old. Photo: Mike Chervinko.

## Editorial

It's the time of year when projects are getting wrapped up and the same is true for INPS! This is the last newsletter for 2018. Also, readers might be interested to know that I hiked the River to River Trail across southern Illinois in early December and blogged about the plants and landscapes I saw as I hiked over 120 miles from the Ohio River in Elizabethtown to the Mississippi River in Grand Tower. Read about it on my blog at my website, [www.illinoisbotanizer.com](http://www.illinoisbotanizer.com). Christopher David Benda.

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## **Message from the President**



Two years ago I started my term as the President of the Illinois Native Plant Society. It has been an incredible journey and it has been a great honor to lead and represent INPS. We are an all-volunteer organization with dedicated members and volunteers at both the state and chapter levels. Our mission, “to promote the study, appreciation, and conservation of the native flora and natural communities of Illinois,” binds us all together and focuses our passion. This is my last message as President of the Illinois Native Plant Society and I would like to use this opportunity to highlight some of our achievements over the past couple years.

During the past two years we have held many events that help to strengthen our mission. Field trips to natural areas throughout the state expose members to native plants and plant communities they might not otherwise get to see. Plant identification workshops—studying the trees, grasses, sedges, ferns, and bryophytes, for example—strengthen our knowledge of Illinois’ native flora. They also help to build a greater appreciation for the unique botanical resources present in Illinois. We have held organized symposia at locations across the state. These events, along with our Annual Gathering, provide an opportunity to learn from invited experts while, at the same time, bring us together as a tighter community. Our recently reinitiated state INPS grants program provides us an opportunity to support native plant research throughout Illinois. In 2018, we funded eight research projects with a total of \$9,000. We preferentially support research projects developed by students at Illinois’ universities and colleges. This gives us great pride knowing we have at least a small part in helping to develop the next generation of botanists and ecologists.

I will continue to serve on the INPS board as Past-President and look forward to welcoming new board members that will lead us into the future. We recently sent out a weblink for members to vote on our vacant board positions and over 100 votes were cast in the first few days (mailed letters were also sent to members without email). Thank you for a tremendous response. That is exactly what we had hoped when a few years ago we made a change to the bylaws to allow electronic voting. If you haven’t voted already, please do so ([INPS Ballot Link](#)). Election results will be made official during our January 2019 INPS board meeting and our new board members will officially start in their elected roles.

In closing, please remember to renew your membership for 2019 (<https://ill-inps.org/online-membership-form/>). That income is what allows us to provide programs, grants, newsletters and everything we do. Also, life members (of which I have been one for many years), please consider giving periodically to INPS so we can continue to sustain and build on our efforts.

Happy New Year and good botanizing,

Paul Marcum

President, INPS

## INPS Chapters

### **NORTHEAST CHAPTER Chicago**

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Check out the [Illinois Native Plant Society Events Calendar](#) for Chapter meetings and workshops.

## Welcome New Members

### **Central Chapter**

Carol Dunaway  
Gregory Feeny  
Beth Young

### **Grand Prairie Chapter**

Stephanie Rahn

### **Southern Chapter**

Leila Kassim

### **Forest Glen Chapter**

Keena Finney

### **Kankakee Torrent Chapter**

### **Northeast Chapter**

Matthew Bucher  
Anthie Tsakalios  
Thomas Yurek

### **Quad Cities Chapter**

Laura Van Barg

## INPS News

### **Membership Renewal Reminder for 2019!**

Please remember to renew your membership dues for 2019. This can be easily done on the INPS website (<https://ill-inps.org/online-membership-form/>) or by filling out the form on the last page of this newsletter. Thank you for your continued support.

### **INPS Board Election**

Please vote in the 2019 INPS Board election using this [Google ballot form](#). In the ballot form you may select the candidate who is running or write in a different person.

### **2019 INPS Research Grant Awards**

**Application deadline is January 31, 2019. Awards will be announced March 31, 2019.**

The Illinois Native Plant Society Research Fund supports scientific research that enhances the conservation of Illinois native plants and ecosystems. Grant awards range from \$500 to \$1,500, and are intended for one-year

projects. For information about eligibility, priority, and other details, please consult the INPS Grants webpage: <https://ill-inps.org/2019-research-grants/>.

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### **Southern Chapter News**

The Southern Chapter just celebrated the holidays with our annual dinner and award ceremony. This year we honored outgoing chapter Treasurer Sonja Lallemand, for her role in organizing our annual Indigenous Plants Symposium. We also added a new board member to the chapter, Nick Seaton, who is the River to River Cooperative Weed Management Area Coordinator.

Our 2019 programming is shaping up nicely. We will host a cadaver botany and potluck at Debbie Newman's on January 26th and this year's Indigenous Plants Symposium is scheduled for April 5-7 at John A. Logan College. More information will be available soon.

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### **Kankakee Torrent Chapter News**

Breaking news! Langham Island Nature Preserve has received an anonymous \$50,000 donation for restoration of the island. The management schedule is still being worked out but the Friends of the Kankakee will be administering the project. Since 2014 INPS members have volunteered countless hours to rehabilitate this site, a nature preserve with the only natural population of Kankakee Mallow (*Iliamna remota*) in Illinois, and their help will continue to be needed to assist in this project.

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### **Central Chapter News**

**January Meeting:** Central Chapter will not meet in January. Regular monthly meetings resume on February 14th at 6:30 PM at Adam's Wildlife Sanctuary in Springfield. Lou Nelms will present "Unintended Consequences -- Off-Target Impacts of Ag Herbicides on Native Plants."

**Grant Program:** Just a reminder: apply now to fund spring and summer projects! The Central Chapter grant program offers funds of up to \$1,000 to individuals or groups for support of projects that promote the conservation of Illinois native plants and natural communities. Applications are limited to projects intended for Central Illinois. For purposes of this grant program, Central Illinois includes the following counties: Brown, Cass, Christian, DeWitt, Fulton, Greene, Jersey, Logan, Macon, Macoupin, Mason, McLean, Menard, Montgomery, Morgan, Sangamon, Schuyler, Scott, Shelby, and Tazewell. For more information, visit <http://ill-inps.org/central-chapter-grant-info/>.

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### **Save the Date**

The 25th North American Prairie Conference will be held in Houston, Texas, June 2-5, 2019. More information is available at <http://www.northamericanprairie.org/>.

## Exploring Southern Illinois for Rare Plants, Part II: *Triphora trianthophora*

By Chris Benda.

It can take a lifetime to get to know the flora of an area, but each year more and more knowledge is attained. I've spent 15 years studying the flora of Illinois and my botanical obsessions include observing rare plants and orchids. Which makes this story about a rare orchid personally special.

There are a few examples of plant species that once seemed elusive to me because I seldom encountered them despite countless hours of botanizing across the state. But then I would learn of where they apparently like to grow and my perception about the rarity would be replaced by a better understanding of the species.

And such is the case for *Triphora trianthophora*, also called Three-birds Orchid. This species is known to occur statewide, but like most orchids, can be hard to find. Orchids don't always reliably occur in the same location every year, plus this species is rather small and can be easily overlooked. Combine that with the extremely specific conditions necessary in order for this species to bloom, and it's easy to understand why so little is known about the population dynamics of this dainty plant in Illinois.



This summer I was contracted to conduct some rare plant surveys in the Shawnee National Forest and one of the sites had a record for *Triphora trianthophora*. While this species is not on the threatened and endangered plant list for Illinois, it is rare enough to be tracked as a sensitive species by the Shawnee National Forest. I was hoping to find the plant, and my confidence was high, as I had also personally seen the species in this area in previous years, and so had the Forest Service Botanist. However, nothing could have prepared me for what I found.

My friend Abel Kinser, author of *Exploring Southern Illinois for Rare Plants, Part I: Styracaceae* in *The Harbinger* Vol. 35, No. 2, Summer 2018, accompanied me on some of the inventories and I remember where we first found some *Triphora*, and in flower! Flowers of this species only bloom for a single day, but each clump can have several flowering cycles each year. Some books suggest the flowers are hard to find because

they only bloom when the summer overnight low temperature is more than 3-5 degrees lower than the previous overnight low for 2 consecutive nights. The week I happened to start the surveys was last July toward the end of the month, after the summer heat waned a little and the overnight temperature dropped, and well within the bloom time for this species in Illinois. This turned out to be fortuitous timing.

Little did we know as we admired and photographed the first clump of blooming orchids, that this was to be the first of many. By the end of the week-long survey we counted 3,015 plants! There are likely many more in the adjacent woods that were not surveyed as part of this project, suggesting that this area might be a stronghold for this species in Illinois. Note: specific location information is not provided to protect the sensitive orchids.

According to some sources, this species is saprophytic, meaning it can obtain nutrients from decaying organic matter. That makes sense because most of the plants were observed at the base of rotting logs in mesic forests that are shaded and moist with a thick layer of detritus. We quickly learned to search around all the downed wood in the forest to find this species.

So it's been a good year for this delicate orchid, and to reiterate, little did I know when I was asked to conduct some rare plant monitoring that it would be one of the most commonly encountered plants in the survey. At the beginning of the survey I would have been happy if I found a single flowering stem, but by the end I found myself actually hoping I would stop finding it so I could get the surveys done!

Further reading: [https://www.fs.fed.us/wildflowers/plant-of-the-week/triphora\\_trianthophora.shtml](https://www.fs.fed.us/wildflowers/plant-of-the-week/triphora_trianthophora.shtml).

## **Tales from Braidwood Savanna: Part II**

By Floyd Catchpole.

### *Reading A Fractured Landscape*

*This article continues the Tales from Braidwood Savanna: An Introduction, which appeared in The Harbinger Vol. 35, No. 3, Fall 2018.*

Reading the landscape is a skill every ecologist learns over years of observation and study. Historical records, plant and animal habitat requirements, remnant populations, climate, and substrate all provide clues to what was, what is, and what may yet come to be on a given piece of land. This discussion is about northeast Illinois, more specifically about the Braidwood Savanna Area in southwest Will County, and major factors shaping ecosystems there.

The climate and (probably) the fire regime have been relatively stable here for the last 4,000 years and it is likely that black and white oak sand savanna has occupied the Braidwood Savanna Area for all of this timespan, allowing considerable natural diversity to accumulate. Soil-vegetation associations in Will County show considerably more savanna and woodland than the 1821-36 PLS data. Since soils develop over centuries and millennia, this indicates that the prairies expanded (or at least did not shrink) during the Little Ice Age (1400-1840 AD).

The likely reason for this surprising result is that higher human population density and annual burning practices during the autumnal hunt led to even higher burn frequencies over the entire county. Cavelier de La Salle (1680) indicated that people burned the Kankakee Sands Section of the Grand Prairie annually during the fall hunt.



Northern Illinois has four major sand systems (Mississippi River, Green River, Kankakee River and Lake Michigan) that are variations on a common theme. The Kankakee River Sands has a distinctly eastern influence where it extends into the Grand Marsh of the Kankakee, and a more western influence where it extends into the Grand Prairie of Illinois.

Braidwood Savanna is located west and south of the Kankakee River in Will County, and is within the extensive lakebed sands of glacial Lake Waubesa, which drained in the Kankakee Torrent 18,000 years ago. Glacial erratics were scattered across the nearly level lakebed as ice floes melted.

The Torrent (and possibly later glacial floods) scoured flow channels in lakebed sands and incised bedrock in the current channel of the Kankakee River. Abandoned flow channels may have only a few feet of sand over limestone gravel, bedrock, or clay. The lakebed within 1.5 miles eroded in a series of sloughs draining toward the incised river. Hudson Creek, the largest creek in the Braidwood Savanna Area, extends less than a mile into the sands before transitioning to slough. Ditches have extended the creek through the slough and into the level lakebed to drain a large pond and wetlands.

Low dunes, typically with peaks less than 20 feet tall, travelled across the lakebed. Most rain infiltrates the sandy soil and groundwater flows north to northeast (and possibly to east) to recharge the Kankakee River. Groundwater is very shallow. Lakebed sands and scoured flow channels typically flood in spring for 2-4 months (or much longer) when not artificially drained.

The depth to clay or bedrock ranges from a few feet to 30 feet or more. There are indications of a complex buried topography under the lakebed sands. In northeastern Sand Ridge Nature Preserve, I have seen drain tile being removed that was laid directly on top of clay about 30 inches down, and northeast of there, a clay layer is exposed along Hudson Creek; but in between these points, an Illinois State Geologic Survey well found the clay layer at about 20 feet. The presence of alkaline-loving bur oaks near the Kankakee River suggests that their roots are influenced by a layer of dolomite, either gravel or bedrock.

Two ecozones occur within the Braidwood Savanna: the riparian and interior zones. The riparian zone typically occurs within 0.5 miles of the Kankakee River and features mature bur oaks and much greater tree diversity. Spread of propagules along the river and shallow soils over dolomite or clay are likely the primary influences. The interior zone features level, lakebed sand; dunes with sunny, black and white oak savanna; no natural stream flows; and greater sand depth. Ditches have been extended into the interior to promote drainage.

Lakebed sand supports a mosaic of wet mesic- to wet-prairie, shrub prairie, marsh, and shrub swamp, depending on topography and depth of sand. Dunes interrupt flow patterns and encourage a broad range of moisture levels in what would otherwise be a relatively monotonous wetland.

Classic, bow-shaped dunes traveled across the moist lakebed from west to east with the prevailing wind. They form a steep drop off on the leading edge and a long taper on the trailing edge. Often portions of the trailing edge were swept up in windstorms and carried eastward, creating linear, west-to-east-oriented swales in the dune. At times, the top of the leading edge is blown off, creating low, land bridges into or across wetlands. All these features have a profound effect on the plant communities.

Active sand dunes may initially support prairie if there are not many acorns around, but when dunes stabilize, they eventually transition to oak savanna because the dry, sandy soil does not support sufficient fuel loads to burn out oaks. The oak savanna increases the organic level of the soil from xeric to dry-mesic and in the presence of frequent, hot fires the dry-mesic savanna becomes a stable ecosystem. The interior zone of the Braidwood Savanna had a tree density of approximately 4 trees/acre (1821 Public Land Survey; PLS) on section lines where trees were found, suggesting a very frequent and hot burn regime.

The dry and xeric (extremely dry) sand communities found in thicker, larger, and more active dune fields (the Central Illinois Sands Area or Savanna Army Depot, for example) seemingly disappeared from the Braidwood Savanna, as indicated by the absence of many plant species characteristic of these communities. However, the remainder of the moisture spectrum is well represented today.

**Dry-mesic savanna** occurs on thicker Aeolian soils. Oak savannas are dominated by black oak (*Quercus velutina*), with white oak (*Quercus alba*) common to co-dominant in the Braidwood Savanna. Black cherry (*Prunus serotina*) is considered an invader, having apparently been bird-dispersed from Kankakee River islands (based on 1821 and 1834 PLS). The common shrubs are hazelnut (*Corylus americanus*), prairie willow (*Salix humilis*), and sassafras (*Sassafras albidum*). Blackberry (*Rubus allegheniensis*), raspberry (*Rubus occidentalis*), and bittersweet (*Celastrus scandens*) round out the dominant, native brambles and vines. Little bluestem (*Schizachyrium scoparium*), puccoon (*Lithospermum canescens*), rough blazing star (*Liatris aspera*), leadplant (*Amorpha canescens*), and goat's rue (*Tephrosia virginiana*) are typical in sunnier areas of our now over-shaded savannas. The Forest Preserve District of Will County (FPDWC) is selectively thinning oaks and burning to restore sunlight to this community.

**Mesic savanna** (occasional) or (rarely) **woodland** occurs on thin, Aeolian soil in fire-sheltered areas, such as east of deep marshes, etc. Box huckleberry (*Gaylussacia baccata*), lowbush blueberry (*Vaccinium pallidum*), and purple chokeberry (*Aronia prunifolia*) may be abundant in the understory, along with little bluestem (*Schizachyrium scoparium*), wild quinine (*Parthenium integrifolium*), rattlesnake master (*Eryngium yuccifolium*), and a diversity of forbs.

**Wind-scoured swales**, extending like moist fingers poking into the dunes from the west, are a continuum of mesic to wet prairie communities, along with wet-mesic shrub prairie. Moisture levels in the interior areas of these narrow swales tend to fluctuate greatly from season to season and year to year. Add to this some shading from the surrounding savanna, and the result is highly variable plant communities that are somewhat different from prairies further from the dunes.

**Sand seeps** occur at the leading (eastern) base of the dunes as a narrow, linear community, with a very diverse flora featuring ferns, tubercled orchid (*Platanthera flava* var. *herbiola*), big bluestem (*Andropogon gerardii*), and sedges (*Carex* spp.). This community forms due to the odd nature of water tables. Capillary action causes the water table to rise under a dune, while it is depressed in lower areas. Rain falling on the dunes percolates down and out through the marginal seeps that are especially prominent on the steep, leading (east) edge of dune fields.

**Riparian seeps** occur where streams have downcut through the clay layer underlying the sand, as on Hudson Creek in the Kankakee Sands Preserve. This linear seep supports an uncommon population of French grass (*Orbexilum onobrychis*), and is recovering from being over-shrubbed.

**Marshes and shrub swamps** often develop just below sand seeps along the eastern front of a dune field or where relatively narrow gaps occur between dunes. Fed by seeps, and resting on moist lakebed soils, these wetlands may be nearly permanent. Sedges (*Carex* spp.), bulrushes (*Schoenoplectus* spp.), buttonbush (*Cephalanthus occidentalis*), and willows (*Salix* spp.) are common features of these wetlands, along with bladderworts (*Utricularia* spp.). Broad-leaved cattails (*Typha latifolia*) were once an occasional, small component in these clear, low-nutrient wetlands, but have mostly been eliminated in the last 5 years, due to hybrid cattails moving in. All cattails are removed from a wetland when hybrids are observed.



Marshes and (perhaps) shrub swamps also naturally occur in scoured lakebeds where low elevation/high water tables combine to support these communities. This community may be observed at Wilmington Shrub Prairie and Hitts Siding. Silver maple (*Acer saccharinum*) is a serious native invader of these communities.

Vernal pools typically occur where dunes trap water to cause a deep pool in the spring which dries during mid- to late-summer in most years. Vegetation is highly variable between years. Both natural and artificial ponds occur in the Braidwood Savanna Area, with highly variable vegetation

**Wet prairie** occurs everywhere around the marshes, except for the leading edge of the dunes, where the seep may transition directly into marsh. The wet prairie is sedge dominated with big bluestem (*Andropogon gerardii*), bluejoint grass (*Calamagrostis canadensis*), sedges (*Carex* spp.), marsh blazing star (*Liatris spicata*), ironweed (*Vernonia* spp.), and often scattered buttonbush (*Cephalanthus occidentalis*), peach willows (*Salix amygdaloides*), and dogwood (*Cornus* spp.) as shrubs.

**Wet-mesic prairie** occurs next, with an increase in ferns, cord grass, and a rich forb component. This is the driest lakebed sand community. Where hydrology is fairly normal, it only requires a thin layer of Aeolian sand to become mesic prairie.

**Wet-mesic shrub prairie** may also occur where water levels are more static, with prolonged shallow flooding and surface moisture. This community has a mossy layer under spireas, ferns, and wet-mesic forbs and grasses. It occurs wherever soil moisture is sufficiently static.

While FPDWC areas have been recovering, the Illinois Department of Natural Resources struggles to manage their lands due to lack of funds. This article will be followed by descriptions of the flora of each community, along with thoughts on responses to disturbances and land management targets.

*Floyd Catchpole has been the Land Management Program Coordinator for the Forest Preserve District of Will County, Illinois (FPDWC) since 2007 and a member of INPS since 1988. In 2011, the FPDWC began a multimillion dollar restoration effort in this area that Floyd has been heavily involved in.*

## Carex Corner #10: *Carex grvida* and *C. muehlenbergii*

By Linda Curtis.

When walking in a prairie, a great number of sedge seed heads nod in the breeze, on stems between knee high and waist high, easy to snap off and identify. If you can.

Two of the most common are sand bracted sedge, *Carex muehlenbergii* and gravid or heavy sedge, *Carex grvida*. Both species have 6–8 spikes in a compact seed head about the size of a 2-cm pencil head. The range of their seed head lengths is usually 1.5-2.5 cm long, as seen in *C. grvida* (fig 1.).

The width of a pencil is 7 mm, useful in estimating the leaf width of the two species. The far right leaf of *C. grvida* is almost the width of the pencil and likely 6 mm, which is in its leaf width range of 4.5-8 mm.



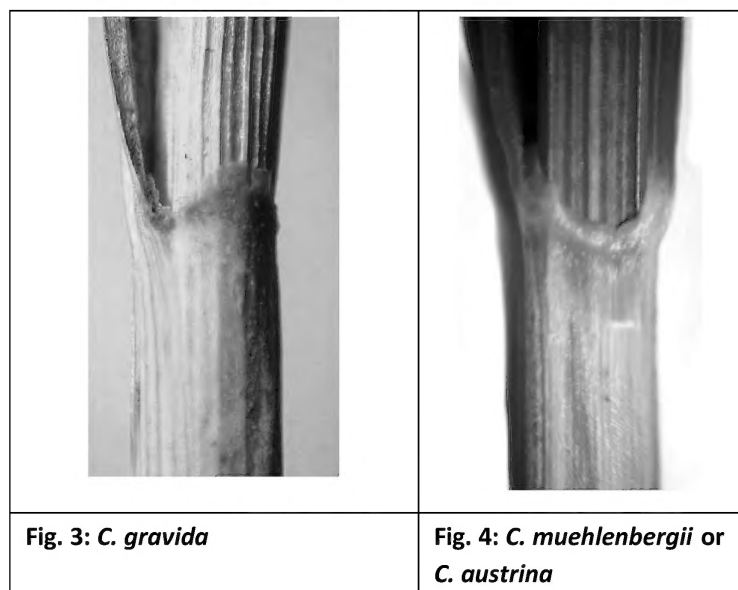
Fig. 1: *C. grvida*



Fig. 2: *C. muehlenbergii*

The narrower leaves of *C. muehlenbergii* are 2-4.5 mm wide. While both species have setaceous bracts, the scales below the sac-like perigynia have awns in *C. grvida*, but not *C. muehlenbergii* (fig 2.).

More clues are needed for identification, since both have long-stemmed culms to 1 m and both are rough or scabrous under the seed heads. So a magnifier is helpful to check the summits of sheaths, whether convex, which is rounded up, or concave, rounded down, and that should give you the answer.

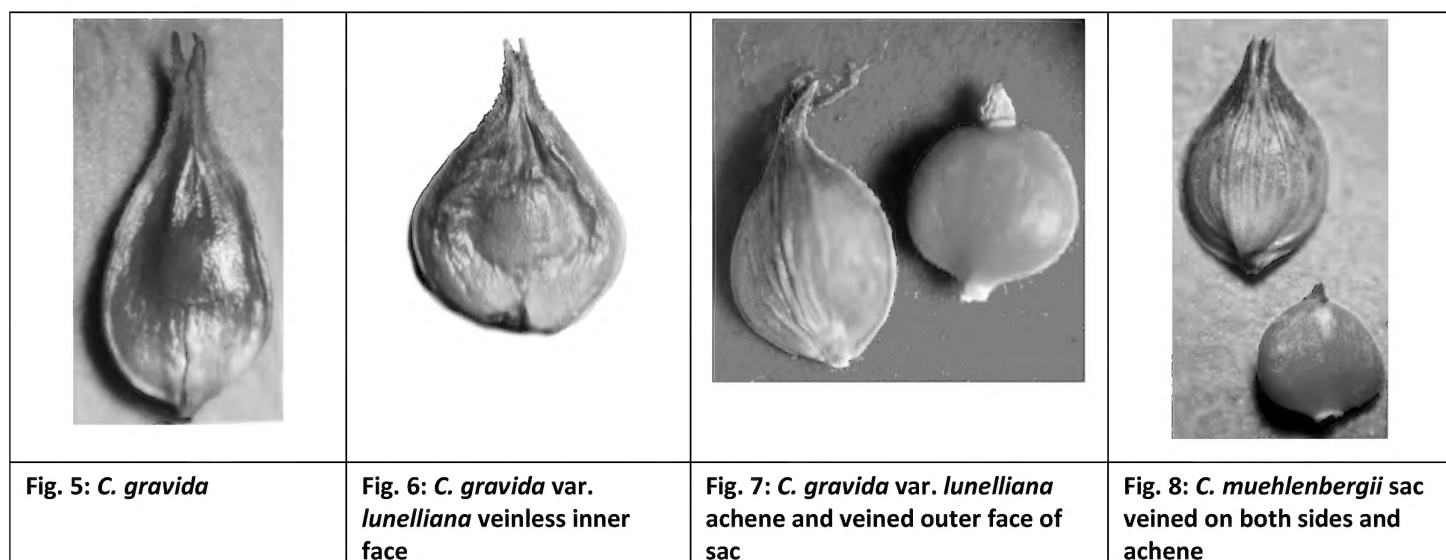


If the sheaths have a convex to prolonged summit, then it's *C. grvida* (fig 3.). If culms have a thick concave lip, then it's *C. muehlenbergii* or *C. austrina* (fig 4.), formerly a variety of *C. muehlenbergii*. The front of the sheaths are usually smooth, but local populations such as the *C. muehlenbergii* that grow along the coastal sand prairies of Lake Michigan often have corrugate or cross rugose sheaths.

When the perigynia or "seed sacs" of *C. grvida* and its variety *C. lunelliana* are compared to those of *C. muehlenbergii* and *C. austrina*, the differences are not immediately apparent. All have ridged sac margins, not winged as the Ovales group.

Sacs of *C. muehlenbergii* and *C. austrina* vary by nerve pattern, as *C. muehlenbergii* has strong nerves on both sides of smaller sacs 2–2.5 mm wide, while *C. austrina*'s sacs have fainter nerves on one side, they are nerveless on the other and sacs are 2.5–3 mm wide. *C. muehlenbergii* var. *enervis*, now named *C. plana* described in the *Illustrated Flora of Illinois*, 2011, has sacs less than 3 mm long while the former are 3–4.5 mm long. Some manuals group all three in size ranges that encompass all.

Sacs of *C. grvida* (fig 5.) are ellipsoid, smooth shiny green, brown, and nerveless on both sides while the sacs of its variety *lunelliana* are orb-ovate, not as shiny, green to yellow, and nerveless on the inner face and with light nerves on the outer face of sac (fig 6.). When mature, the 2 mm seed-like achene will fill the sac, making it appear heavier (fig 7.). Sacs of *C. muehlenbergii* begin green with strong white veins, but mature to brownish tan (fig 8).



The achenes within their sacs may be circular or even wider than long.

*C. gravior* and its var. *lunelliana* have achenes that retain their style with its swollen base. The top of the achene has a snug rim around the persistent style base.

As sacs mature, their color changes, even after pressed on an herbarium sheet. *C. lunelliana* has species status in *Illustrated Flora of Illinois* (2011), but is not yet recognized by ITIS, Integrated Taxonomic Information System (<https://www.itis.gov/>). Other traits may help identify these common prairie sedges, and often several manuals must be consulted.

*Lindaeus* or Linda W. Curtis, botanist, is author of *Woodland Carex* and *Bog-Fen Carex of the Upper Midwest*. [www.curtistothethird.com](http://www.curtistothethird.com).

## In Search of the Virginia Bunchflower

By William McClain

Virginia bunchflower, *Melanthium virginicum*, was regarded as a rare plant in 1998, but its abundance and distribution within the state were not well known. The absence of this information suggested the need for a field survey to determine its distribution and abundance. The first step of this process involved an examination of all herbariums likely to contain specimens from Illinois. Specimen labels contained valuable information, including locations where plants were collected. This process may seem somewhat boring, but excitement grows when you hold and examine specimens collected by early botanists, such as Samuel B. Mead or Henry A. Gleason.

We soon had a list of all known Illinois specimens, and it wasn't long before I was on the road with Doc (Dr. John Ebinger), my mentor, to locate the *Melanthium* populations described on the specimen labels. The locations written on many early collections are very general, so finding the site took some detective work. We were soon looking at site after site, often finding the area completely changed. Some searches took us to railroads where we found a few bunchflowers growing among dense fescue. An abandoned railroad right-of-way in Brown County, long known for an abundance of bunchflower, was growing corn when we arrived. Another site with numerous plants was bulldozed shortly after the owner learned of the presence of this rare plant.

The field trips were enjoyable, but many ended in disappointment when we learned about the loss of bunchflower populations. One field trip to an abandoned Hancock County railroad prairie made a lasting impression on me. Doc and I were pushing through chest-high big bluestem and compass plants, hoping to find bunchflower. It was a nice, sunny day, but the unmistakable odor of a skunk permeated the air. Our search ended in failure, so we decided to do the next best thing, find something to eat. We stopped in Kilbourne to purchase some melons, and the lady that helped us asked a question. "Did you guys happen to hit a skunk on



Virginia bunchflower (*Melanthium virginicum*). Photo by Chris Benda.

the way here?” I said “No, but we were in tall grass and the smell of skunk was everywhere.” I turned just in time to see Doc pump his fist in the air and shout: “Yes! We smell like skunks.”

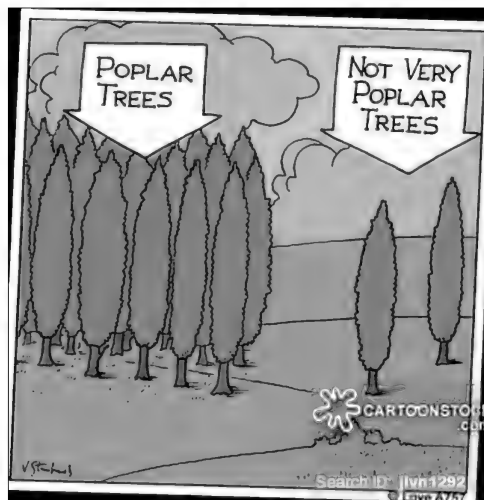
We survived the skunks and documented the bunchflower populations which was information suggesting that this species was worthy of state-threatened or endangered listing. Our study also caused us to believe that bunchflower was originally confined mostly to wet mesic prairies in the Galesburg Section of the Western Forest-Prairie Division. There were exceptions, including a few small populations in the Grand Prairie Division and the Carlinville Section of the Western Forest/Prairie Division. Reports of its occurrence in St. Clair County could not be verified.

New populations have been discovered since our study, including one within a Southern Till Plain Division prairie, an occurrence I find most thought provoking. This discovery causes me to believe that we will never be sure of the original southernmost location for this plant because most prairie in the Southern Till Plain has been lost.

It is a beautiful plant, one that causes me to try to visualize, as I hold specimens collected by someone like Samuel Mead, masses of white flowers, swaying in the breeze, in the original prairies of Hancock County. Seeing these areas would have been so awesome, even if skunks were roaming through the big bluestem.

*William McClain is a retired Natural Areas Manager with the Illinois Department of Natural Resource, a commissioner on the Illinois Nature Preserves Commission, and an adjunct research associate with the Illinois State Museum.*

## Botany Humor



# Botany Basics: Technical Fruit Types, Part I

By Abel Kinser.

## *Strawberries Are Not Berries! Walnuts Are Not Nuts!*

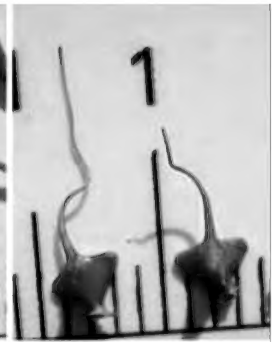
All flowering plants, upon pollination and fertilization of their flowers, produce a seed-containing structure called a fruit. Botanists classify fruits based on being fleshy or dry, number of carpels present, number of seeds per carpel, and dehiscent vs. indehiscent. Dry fruits can be divided into those in which the seeds are contained in a seedpod of some sort which opens to release the seeds (called dehiscent), and those in which there isn't a seedpod which opens (indehiscent).

The technical fruit categories can be confusing at times since our everyday use of berry and nut is not the same as their botanical definitions. It may be surprising to learn that strawberries and blackberries are *not* berries, or that walnuts and pecans are *not* nuts! The tomato is technically a berry and even made it all the way to the Supreme Court of the United States in 1893 when they ruled a tomato is a vegetable (not a fruit) within the meaning of the Tariff Act of 1883. The fruit types seen in Illinois' flora are defined below with photos to illustrate examples for each.

**Achene:** A simple, dry, indehiscent, single-seeded fruit in which the seed lies free in the cavity. Achenes are characteristic of the buttercup, smartweed, and sedge families.

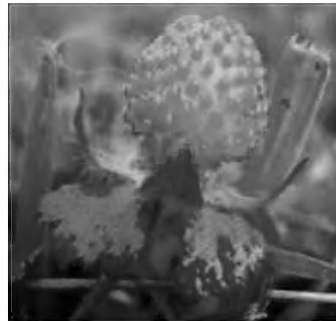


Leatherflower  
(*Clematis pitcheri*)



Giant Sedge  
(*Carex gigantea*)

**Aggregate:** Consisting of a number of separate carpels from a single flower such as those of magnolias, raspberries, blackberries, and strawberries.



Indian Strawberry  
(*Duchesnea indica*)



Southern Dewberry  
(*Rubus trivialis*)

**Berry:** Fleshy fruit formed from a single ovary with one to several carpels, each of which is many seeded with the inner layer of the fruit wall fleshy. Tomatoes, cucumbers, persimmons, blueberries, and pawpaws are example of berries.



Pawpaw  
(*Asimina triloba*)



Low-bush Blueberry  
(*Vaccinium pallidum*)

**Capsule:** Dry, dehiscent fruit developed from a single ovary with several carpels. Capsules are characteristic of the orchid, mallow, and poppy families.



Puttyroot Orchid  
(*Aplectrum hyemale*)



Dutchman's-breeches  
(*Dicentra cucullaria*)



Rose Mallow  
(*Hibiscus lasiocarpus*)

**Caryopsis:** Similar to an achene but with the seed firmly united to the fruit wall. Grain is another name used for caryopsis which are unique to the grass family.



Beakgrass  
(*Diarrhena obovata*)

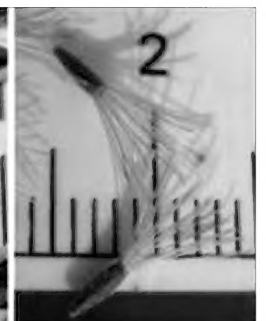
**Cypsela:** Dry, indehiscent, singled-seeded fruit unique to the composite family. Many refer to this fruit as an achene, but cypselae originate from an inferior ovary while achenes originate from a superior ovary.



Potato Dandelion  
(*Krigia dandelion*)



Frostweed  
(*Verbesina virginica*)



Blazing Star  
(*Liatris squarrulosa*)



**Drupe:** Fleshy fruit in which the seed is found inside a hard shell often called the stone or pit. This pit is enclosed by an outer fleshy part which is surrounded by a thin skin. Peaches, cherries, walnuts (the “nut” of a walnut is part of the seed inside the stony pit), hickories, pecans, and dogwoods produce drupes.



Black Walnut  
(*Juglans nigra*)



Flowering Dogwood  
(*Cornus florida*)

*To be continued in the next issue of The Harbinger.*

## Web Links

### Monarch Watch

Monarch Watch is excited to report that with our partner nurseries in Kansas, Oklahoma, California, and Florida, we distributed over 147,000 milkweed seedlings in 2018. Planning for Spring 2019 begins now. Preorders and early applications are necessary to help us determine how many plants we need to grow.

Please help get the word out about these three ways to get milkweed plants, and put your order in now!

1. Milkweeds are available for purchase by the flat through our Milkweed Market. Preorder for Spring 2019 here: <https://monarchwatch.org/milkweed/market/>
2. We have funding in place to distribute 100,000 FREE milkweeds for restoration projects. We are currently accepting applications for Spring 2019. The link to the free milkweed information page and application is provided below. This grant provides free milkweeds for large scale (2+ acres) habitat restorations on both private and public lands. <http://monarchwatch.org/bring-back-the-monarchs/milkweed/free-milkweeds-for-restoration-projects/>
3. Through a separate grant, schools and educational non-profit organizations can apply for one free flat of milkweed for Spring 2019 at this link: <https://biosurvey.ku.edu/application-free-milkweed-nonprofits-and-schools>

Thank you for your help in spreading the word and planting more milkweed for monarchs. If you do not see milkweed available for you now, re-visit the Milkweed Market later to see if we have added products based on new seed acquisitions. Please contact Dena Podrebarac at Monarch Watch with any questions at [denap@ku.edu](mailto:denap@ku.edu).

### Nachusa Grasslands Video Available Online

Thirty years ago, Bill Kleiman was offered a job with a question: "So, what do you think of putting bison there?" Now those bison—the largest free herd in Illinois—play an integral role in restoring the Nachusa Grasslands to their original glory. A 4-minute video describes this success story:

<https://m.youtube.com/watch?v=jczplT4OUFw>

ILLINOIS NATIVE PLANT SOCIETY

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Carbondale, IL 62903

[illinoisplants@gmail.com](mailto:illinoisplants@gmail.com)

[www.ill-inps.org](http://www.ill-inps.org)



Blackjack oak  
(*Quercus marilandica*).

Photo: Chris Benda.

## The Harbinger December 2018

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